

Appl. No.: 10/608,580
Amdt. Dated: 28 June 2005
Reply to Office Action of: 2 June 2005

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for growing a doped glass layer ~~[[film]]~~ on a surface of a substrate comprising the step of:

reacting a ~~[[depant]]~~ precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass layer ~~[[film]]~~ on the surface of the substrate;

wherein M is Ti or Zr; R_3 is an alkyl moiety; R' is an alkyl moiety; j is 1, 2, 3 or 4; and $k=4-j$, and

wherein said doped glass layer on the substrate has a Si:M ratio of 1:1, 2:1, 3:1 or 4:1 depending on the value of j.

2. (original) The method of claim 1, wherein R is selected from the group consisting of methyl, ethyl and propyl; and R' is selected from the group consisting of methyl, ethyl, *n*-propyl, isopropyl, *n*-butyl, isobutyl, *t*-butyl and *s*-butyl.

3. (cancelled)

4. (currently amended) The method of claim 1 ~~[[3]]~~, wherein the doped glass layer is deposited ~~reacting step is performed~~ using a CVD process.

5. (currently amended) The method of claim 1 ~~[[3]]~~, wherein the CVD process is an inside vapor deposition process or an outside vapor deposition process.

6. (currently amended) The method of claim 1 ~~[[5]]~~ wherein the reacting step is performed using a PECVD process.

7. - 8 (cancelled)

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9. (currently amended) The method of claim 1 ~~[[8]]~~, wherein the doped glass layer is deposited ~~reacting step is performed~~ using a flame hydrolysis deposition process.

10. (currently amended) The method of claim 9 wherein the doped glass layer is deposited as film ~~deposited in the reacting step~~ is a layer of doped glass soot particles, and wherein the method further comprises the step of consolidating the soot particles to a homogeneous doped glass film by heat treatment.

11. (currently amended) The method of claim 1 wherein the precursor compound of the formula $(R_3SiO)_jM(OR)_k$ is mixed with a silica precursor before deposition of the doped glass layer; and when said silica precursor is admixed with the precursor $(R_3SiO)_jM(OR)_k$, the resulting glass product has a non-stoichiometric Si:M ratio relative to j, including a value greater than j. ~~is reacted with the dopant precursor.~~

12. (currently amended) The method of claim 11, wherein the silica precursor ~~forming substance~~ is selected from the group consisting of tetraethoxysilane, silane, disilane, tetramethylsilane, trimethylsilane, dimethylsilane, methylsilane, tetraaminosilane, triaminosilane, diaminosilane, aminosilane, tetrakis(diethylamino)silane, octamethylcyclotetrasiloxane, tetramethylcyclotetrasiloxane and diacetoxysilane.

13. (original) The method of claim 1, wherein the organometallic compound is chosen from the group consisting of tetrakis(trimethylsiloxy)titanium, tetrakis(trimethylsiloxy)zirconium, tris(trimethylsiloxy)isopropoxytitanium, tris(trimethylsiloxy)isopropoxyzirconium, bis(trimethylsiloxy)diisopropoxytitanium, bis(trimethylsiloxy)diisopropoxyzirconium, (trimethylsiloxy)triisopropoxytitanium, and (trimethylsiloxy)triisopropoxyzirconium.

14-21. (previously cancelled)

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22. - 25 (cancelled)

26. (currently amended) A method of making a planar waveguide comprising the steps of:

~~using a reacting-a-dopant~~ precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass ~~layer~~ ~~[[film]]~~ on the surface of a substrate, wherein M is Ti or Zr; R is an alkyl moiety; R' is an alkyl moiety; j is 1, 2, 3 or 4; and $k=4-j$; and

using photolithographic techniques to form the planar waveguide from the doped glass ~~layer~~ ~~[[film]]~~.

27. (currently amended) A method of making an optical fiber comprising the steps of:

making an optical fiber preform by ~~using a reacting-a-dopant~~ precursor compound of the formula $(R_3SiO)_jM(OR')_k$ to deposit a doped glass ~~layer~~ ~~[[film]]~~ on the surface of a substrate, wherein M is Ti or Zr; R is an alkyl moiety; R' is an alkyl moiety; j is 1, 2, 3 or 4; and $k=4-j$; and

drawing the optical fiber preform into an optical fiber.

28. (new) The method according to claim 26, wherein the precursor compound of the formula $(R_3SiO)_jM(OR')_k$ is mixed with a silica precursor before deposition of the doped glass layer; and when said silica precursor is admixed with the precursor $(R_3SiO)_jM(OR')_k$, the resulting glass product has a non-stoichiometric Si:M ratio relative to j, including a value greater than j.

29. (new) The method according to claim 27, wherein the precursor compound of the formula $(R_3SiO)_jM(OR')_k$ is mixed with a silica precursor before deposition of the doped glass layer; and when said silica precursor is admixed with the precursor $(R_3SiO)_jM(OR')_k$, the resulting glass product has a non-stoichiometric Si:M ratio relative to j, including a value greater than j.